

James C. SOLINSKY
Serial No. 09/658,275

Remarks

Reconsideration and allowance of the subject patent application are respectfully requested.

Claims 1-3, 5-8, 9-11, 13-19, 21-24 and 29-32 were provisionally rejected under the judicially-created doctrine of obviousness-type double patenting based on certain claims of co-pending Application No. 09/658,276. In a paper filed on even date herewith, the '276 application is being expressly abandoned for the purpose of avoiding double patenting issues with respect to the claims of the '276 and of the subject patent application. Accordingly, the provisional double patenting rejection of claims 1-3, 5-8, 9-11, 13-19, 21-24 and 29-32 is moot.

Claims 5-8, 13-16 and 48-51 were objected to because they are alleged to be apparatus claims that depend from method claims. Applicant believes these claims include every limitation of the claims from which they depend as required by 35 U.S.C. Section 112, and, as expressly noted in MPEP Section 608.01(n), "[t]he fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper." Nonetheless, to expedite prosecution, claims 5-8, 13-16 and 48-51 have been rewritten as method claims.

Claims 6-8, 14-16, 22-24, 29-31 and 49-51 were rejected under 35 U.S.C. Section 112, first paragraph, as allegedly failing to reasonably provide enablement for an integrated circuit or hardware processing engine. Specifically, the office action states that although the specification is enabling for a mathematical algorithm, it is allegedly not sufficient to enable any person skilled in the art to provide the invention in an integrated circuit or hardware processing engine. Applicant respectfully traverses this rejection.

As previously discussed, with the advent of mathematical languages, such as Mathematica[®], mathematical equations can be directly converted to computer processing code algorithms. In addition, using Handel-C[®], compilable C code can be converted into hardware net-lists. Equations (1)-(4) on page 27, equation (10) on page 29, and equations (11)-(17) on pages 31-32, for example, all use standard algebra and vector representations that are common elements in descriptions either directly translatable into, for example, Mathematica[®] software, or commonly used in translation to MatLab[®] software environments. Applicant respectfully

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submits that a person skilled in the art would be readily able to implement the teachings of this application into hardware engines or integrated circuits or net lists.

As example evidence, Applicant attaches hereto a copy of a web page (updated February 2000 and identifying Christian Peter of Oxford University as the author) entitled: "Overview: Hardware Compilation and the Handel-C language." This web page notes:

Handel-C is a programming language designed for compiling programs into hardware images of FPGAs or ASICs. It is basically a small subset of C, extended with a few constructs for configuring the hardware device and to support generation of efficient hardware. It comprises all common expressions necessary to describe complex algorithms, but lacks processor-oriented features like pointers and floating point arithmetic. The programs are mapped into hardware at the netlist level, currently in xnf or edif format.

In contrasting Handel-C with the VHDL hardware description language, the web page further notes:

The low-level problems are hidden completely, all the gate-level decisions and optimisation are done by the compiler so that the programmer can focus his mind on the task he wants to implement. As a consequence, hardware design using Handel-C resembles more to programming than to hardware engineering, and in fact, this language is developed for programmers who have no hardware knowledge at all.

Applicant respectfully submits that one of ordinary skill in the art reading the disclosure of the subject application would have been readily able to develop hardware engines or integrated circuits or netlists based on the specification without undue experimentation. As discussed above, such designs could be readily implemented using well-known tools commercially available at the time the application was filed, at least one these tools (Handel-C) being developed for use by programmers "who have no hardware knowledge at all."

Applicants believe the subject matter of claims 6-8, 14-16, 22-24, 29-31 and 49-51 is fully enabled by the disclosure as originally filed and respectfully request withdrawal of the rejection of claims 6-8, 14-16, 22-24, 29-31 and 49-51 based on Section 112, first paragraph.

Claims 1-52 were rejected under 35 U.S.C. Section 112, second paragraph, as allegedly being indefinite. Applicant has amended the independent claims in light of the Examiner's comments to more particularly describe that the outputs are output signals. Based on these

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amendments, withdrawal of the rejection of claims 1-52 under 35 U.S.C. Section 112, second paragraph, is respectfully requested.

Applicant acknowledges with appreciation the indication that claims 35-52 recite allowable subject matter and that the amendments to the other claims to incorporate features argued, but not claimed, would be favorably considered if the Section 112 and 101 issues were resolved.

In this regard, claims 1, 9, 17, 25 and 32 have been amended to specify "a user memory model" in the context of the claimed systems and methods. This feature is believed to distinguish over the applied documents and any combinations thereof.

Claims 35-52 are believed to be allowable based on the indication to this effect in the office action and the addressing of the Section 112 and Section 101 issues.

New claims 53-56 have been added. The subject matter of these new claims is fully supported by the original disclosure and no new matter is added. Claims 53 and 54 depend from claim 35 and claims 55 and 56 depend from claim 52. These claims are believed to be allowable at least because of their respective dependencies from either claim 35 or 52.

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The pending claims are believed to be allowable and favorable office action is respectfully requested. Should any issues remain, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

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